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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,242	07/18/2006	Mark Thomas Johnson	NLO40052	8273
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EXAMINER				
HICKS, CHARLES V				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/597,242

**Applicant(s)**

JOHNSON ET AL.

**Examiner**

CHARLES HICKS

**Art Unit**

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Machida et al. (US 2002/0196207) in view of Knapp et al. (5,684,501) and further in view of Zehner et al. (US 2006/0139310).

In reference to claim 1, Machida teaches a display device comprising electrophoretic particles (Machida Fig. 2, 22,24; page 1 paragraph 4),

an image screen comprising an array of display elements comprising a pixel electrode and a second electrode between which a portion of the electrophoretic particles are present (Michida Fig. 2)

and control means for supplying drive signals to the electrodes to bring display elements in a predetermined optical state corresponding to the image information to be displayed (Michida Fig. 2, control unit 16)

wherein in operation the image is displayed in subsequent frames, said control means comprising a row driver and a column driver (Machida Fig. 11; page 5 paragraph 91, a matrix display)

Machida however fails to teach a means for supplying preset signals to the display elements whereby the preset signals applied to display elements alter between subsequent frames.

Knapp teaches a means for supplying preset signals to the display elements whereby the preset signals applied to display elements alter between subsequent frames (Knapp column 7 lines 56-66; reset voltage signal charges and discharges in alternate fields),

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the display device of Machida with the preset signals alternating each frame of Knapp.

The motivation being an electrophoretic display with reduced flicker, something one of ordinary skill in the art would appreciate from the reset voltage of Knapp.

Machida as modified by Knapp fails to teach wherein the control means are arranged to change preset signals between frames in a column-to-column scheme and that the means for supplying preset signals are arranged such that for the preset signals to at least a part of the image screen comprising a group of columns and rows only one set of data is transferred for the preset signals for said group.

Zehner teaches wherein the control means are arranged to change preset signals between frames in a column-to-column scheme (Zehner page 17 paragraphs 175, 176; odd and even number columns),

and that the means for supplying preset signals are arranged such that for the preset signals to at least a part of the image screen comprising a group of columns and rows only one set of data is transferred for the preset signals for said group (Zehner page 17 paragraph 177, one group of pulses to be 180 degrees out of phase with the other group; paragraph 178, two groups with the first drive scheme of Fig. 11A and the second drive group of Fig. 11B).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the display device of Machida modified by Knapp with the column-to-column, and grouping of Zehner.

The motivation being a display with an even level of luminance, something one of ordinary skill in the art would appreciate from the column-to-column grouping of Zehner.

Claim 2 is rejected as being dependent on rejected claim 1 as discussed above and further, Machida modified by Knapp fails to teach wherein the group comprises at least two columns.

Zehner teaches wherein the group comprises at least two columns (Zehner page 10 paragraph 111; columns of display groups being driven in separate groupings).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Machida modified by Knapp and Grier with the groups of columns of Zehner.

The motivation being a display with reduced flicker, something one of ordinary skill in the art would appreciate from the groups of columns of Zehner.

Claim 3 is rejected as being dependent on rejected claim 1 as discussed above and further, Machida modified by Knapp fails to teach wherein display screen is composed of n.times.m groups of columns and rows.

Zehner teaches wherein display screen is composed of n.times.m groups of columns and rows (Zehner page 17 paragraph 177, pixels divided into groups of rows and columns receiving different reset pulses; page 19 paragraph 195; pixel groups arranged in rectangles).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Machida modified by Knapp with the groups of columns and rows of Zehner.

The motivation being reduced flicker and less power consumption (Zehner page 19 paragraph 195).

Claim 4 is rejected as being dependent on rejected claim 2 as discussed above and further Machida modified by Knapp fails to teach wherein the display screen is composed of two groups of columns and rows.

Zehner teaches wherein the display screen is composed of two groups of columns and rows (Zehner page 17 paragraph 176).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Machida modified by Knapp with the two groups of columns and rows of Zehner.

The motivation being reduced flicker observable in the display, something one of ordinary skill in the art would appreciate from the two groups of columns of Zehner.

Claim 5 is rejected as being dependent on rejected claim 1 as discussed above and further, Machida teaches wherein the group comprises substantially all columns and rows of the image screen (Machida Fig. 2-3; page 5 paragraph 91).

Claim 6 is rejected as being dependent on rejected claim 3 as discussed above and further, Machida teaches wherein the display screen is divided in quadrants, to each quadrant a group is associated with its row and column driver. (Machida Fig. 14A; page 10 paragraph 155).

In reference to claim 7, Machida teaches a method for driving a display device comprising electrophoretic particles (Machida Fig. 2, 22,24; page 1 paragraph 4),

an image screen comprising an array of display elements comprising a pixel electrode and a second electrode between which a portion of the electrophoretic particles are present (Machida Fig. 2)

and control means for supplying drive signals to the electrodes to bring display elements in a predetermined optical state corresponding to the image information to be displayed (Machida Fig. 2, control unit 16)

wherein in operation the image is displayed in subsequent frames, said control means comprising a row driver and a column driver (Machida Fig. 11; page 5 paragraph 91, a matrix display)

Machida however fails to teach a means for supplying preset signals to the display elements whereby the preset signals applied to display elements alter between subsequent frames.

Knapp teaches a means for supplying preset signals to the display elements whereby the preset signals applied to display elements alter between subsequent frames (Knapp column 7 lines 56-66; reset voltage signal charges and discharges in alternate fields),

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the display device of Machida with the preset signals alternating each frame of Knapp.

The motivation being an electrophoretic display with reduced flicker, something one of ordinary skill in the art would appreciate from the preset signals alternating each frame of Knapp.

Michida modified by Knapp fails to teach wherein the control means are arranged to change preset signals between frames in a column-to-column scheme and that the means for supplying preset signals are arranged such that for the preset signals to at least a part of the image screen comprising a group of columns and rows only one set of data is transferred for the preset signals for said group.

Zehner teaches wherein the control means are arranged to change preset signals between frames in a column-to-column scheme (Zehner page 17 paragraph 176; odd and even number columns),

and that the means for supplying preset signals are arranged such that for the preset signals to at least a part of the image screen comprising a group of

columns and rows only one set of data is transferred for the preset signals for said group (Zehner page 17 paragraph 177, one group of pulses to be 180 degrees out of phase with the other group; paragraph 178, two groups with the first drive scheme of Fig. 11A and the second drive group of Fig. 11B).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the display device of Machida modified by Knapp with the column-to-column, and grouping of Zehner.

The motivation being a display with an even level of luminance, something one of ordinary skill in the art would appreciate from the column-to-column grouping of Zehner.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Grier et al. (US 6,801,220) reads on adjusting luminance characteristics.

Katase (US 6,961,047) reads on a method and circuit for driving electrophoretic devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHARLES HICKS whose telephone number is 571-270-7535. The examiner can normally be reached on Monday-Thursday from 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz, can be reached on 571-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sumati Lefkowitz/  
Supervisory Patent Examiner, Art Unit 2629